

Smallholder Agricultural Commercialization for Income Growth and Poverty Alleviation: A Review from Ethiopian Context

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Abstract

This review paper explores the concept of smallholder agricultural commercialization highlighting cases from Ethiopia. With most of Ethiopia's rural poor primarily depending on agriculture for livelihoods, shifting production from current subsistence towards market orientation (commercializing) can significantly increase the income and welfare of small farmers (smallholders) as well as contribute to economic growth and poverty alleviation. Smallholders face many environmental and individual constraints to commercialize. However, the changing environment driven by growing population, urbanization, income, global interconnectedness, policy reforms, technology, food industry restructuring and climate change presents opportunities for smallholder market participation. Efforts made in the country produced varying degrees of success depending on contexts and strategies, but collaborative efforts have been the most successful. While some negative effects can emerge, the expected income-mediated positive results at household and societal level are greater. The key components of commercialization are its drivers, determinants, processes, strategies, indicators and effects - which can be synthesized into a conceptual model useful in planning, implementation and review of commercialization programs. Future research needs to comprehensively define and measure commercialization and develop models which stimulate multi-stakeholder support for smallholders, joint investments, attitude change and entrepreneurship to succeed in smallholder commercialization.

Keywords: Smallholder, agricultural commercialization, income growth, poverty alleviation, Ethiopia.

1. INTRODUCTION

1.1. Back ground of the review

Agriculture plays a critical role in livelihoods, employment, income growth, food security, poverty alleviation, socio-economic development and environmental sustainability in developing countries (Upton, 2004; IFPRI, 2005; World Bank, 2008; Gollin, 2010; Pingali, 2010). What makes it more critical in Ethiopia is that the sector is mainly based on smallholder farms and contributes about half to the total Gross Domestic Product (GDP) and the livelihoods of more than 80% of the citizens (Diao *et al.*, 2007). This implies that developments in agriculture can have far reaching direct effects in uplifting lives of the poor. However, many developing countries have not fully utilized agriculture for its multiple functions (Pingali, 2010). Smallholder farmers, who constitute the bulk of the rural poor have also not fully benefited from agriculture's multiple functions because they predominantly practice consumption-oriented subsistence agriculture which excludes them from the formal market system and the related income-mediated benefits (Diao and Hazell, 2004; IFPRI, 2005; World Bank, 2008).

As the environment becomes more dynamic, presenting new opportunities and challenges, the viability of subsistence agriculture in guaranteeing livelihoods declines (Pingali and Rosegrant, 1995; Pingali, 2010). The new environment characterized by growing population, urbanization, income, global interconnectedness, policy reforms, technology, food industry restructuring and climate change calls for transformed agriculture (Barrett, 2008; World Bank, 2008). Commercialization can achieve agricultural transformation by shifting production practices from current consumption-orientation towards market-orientation (Brush and Turner, 1987; Pingali and Rosegrant, 1995; World Bank, 2008). Smallholder commercialization is described as a pillar of household livelihoods (von Braun and Kennedy, 1994); a cornerstone of rural development and poverty reduction (Pender and Alemu, 2007) and an indispensable pathway to economic growth (von Braun and Kennedy, 1994). This implies that commercialization's ultimate purpose is poverty alleviation and economic development through income growth. The subsistence oriented smallholders have the greatest need to commercialize, to satisfy growing demand and partake in the resultant income-mediated benefits (Kirsten *et al.*, 2012). This process requires greater commitment, spread and speed to catch up with the rapidly changing environment (Hazell *et al.*, 2007).

This review paper therefore synthesizes the key elements of agricultural commercialization and highlights experiences in Ethiopia to assist in understanding of the concept, its application and future potential. It begins with conceptualization of terminologies and, the role of agriculture and smallholders in the country before exploring other concepts with cases, drawn from the country. It then summarizes key commercialization elements into a conceptual model, discusses application of the model and concludes with pointing to some research gaps and future research directions.

1.2. Objectives of the review

The general objective of this paper was to review the key components of smallholder commercialization, and to review the potential gaps in smallholder commercialization which future research and development should address. Specifically, the review has addressed the following objectives:

- to review the theoretical concepts of smallholders and smallholder commercialization;
- to review the role of agriculture and smallholders in development;
- to review the key components of smallholder agricultural commercialization and experiences in Ethiopia; and
- to review the potential gaps in smallholder agricultural commercialization which future research and development should address.

2. LITERATURE REVIEW

2.1. Definition of Basic Concepts

2.1.1. Smallholders

The concept of small farms can be approached from a variety of angles. Small-scale agriculture is often, albeit not always appropriately, used interchangeably with smallholder, family, subsistence, resource-poor, low input, or low technology farming (Heidhues and Bruntrup, 2003).

The following examples of definitions illustrate the diversity of conceptual approaches to the term. Lipton (2005) defines family farms as “operated units in which most labour and enterprise come from the farm family, which puts much of its working time into farm” by (Oksana, 2005). On the other side, the World Bank’s Rural Strategy defines as those with a low asset base, operating less than two hectares of cropland (World Bank, 2003). Further, FAO study defines smallholder as “farmers with limited resource endowments, relative to other farmers in the sector” (Dixon *et al.*, 2003).

There is no clear out definition of small farms and smallholder farmers. The simplest and conventional meaning of a smallholder is the case when the land available for a farmer is very limited (Chamberlin, 2008; Hazell *et al.*, 2007). However, the meaning goes beyond this conventional definition and consists of some general characteristics that the so called small farms or smallholders generally exhibit. Chamberlin has identified four themes on the basis of which smallholders can be differentiated from others. These themes include land holding size, wealth, market orientation, and level of vulnerability to risk. Accordingly, the smallholder is the one with limited land availability, poor-resource endowments, subsistence-oriented and highly vulnerable to risk. Nevertheless, the smallholder may or may not exhibit all these dimensions of smallness simultaneously. It is also common to set numeric value as the way to defining small-farms. Hazell *et al.* (2007), note that some literature define small farms as those less than two hectares of crop land while others define smallholders as those endowed with “limited resource,” such as land, capital, skills and labour. Similarly, there are also those authors who often describe small farms in terms of the low technology they mostly use, their heavy dependence on household labour and their subsistence orientation.

There is no clearly stated definition as to what constitute a small farm in Ethiopia as it is the case in many developing countries as well. However, it is well known that small farmers in Ethiopia account for most of the Ethiopian population and the food grain production (Betre, 2006). In Ethiopia smallholder farmers cultivate about 95% of the total cropped land and produce more than 90% of the total agricultural output. The average land holding size of 1.18 hectares per farm household (CSA, 2008) in Ethiopia meets the conventional meaning of small farms (less than two hectares per household). Even far beyond that the smallholders in Ethiopia are known for their resource constraints such as capital, inputs and technology; their heavy dependence on household labour; their subsistence orientation; and their exposure to risk such as reduced yields, crop failure and low prices (Betre, 2006; Mahelet, 2007).

2.1.2. Smallholder commercialization

Commercialization as a concept is multi-dimensional and no one definition has been able to capture all its facets. The definitions differ in focus and breadth, which has also influenced its measurement. It is more than whether or not a cash crop is present in a production system (von Braun *et al.*, 1994). Sometimes a proportion of the so called traditional food crops are sold while on the other hand, some proportions of the so called traditional cash crops are retained for home consumption. Similarly, agricultural commercialization is more than marketing agricultural outputs because commercialization can also occur on the input side with use of purchased inputs in agricultural production (von Braun *et al.*, 1994).

Pingali and Rosegrant (1995) and Pingali (1997) defined agricultural commercialization as “when household decisions on product choice and input use are made based on the principles of profit maximization”. Therefore, commercialization takes place when households purposively target markets in their production decisions rather than being simply related to the amount they are likely to sell as a result of surplus production. In other words, commercialization occurs when production is in response to market signals and on the basis of

comparative advantage, whereas subsistence production is on the basis of production feasibility and subsistence requirements with only surplus product sold after meeting own consumption needs. Hence, commercialization by many authors is taken to be a deliberate action on the part of the agricultural producers of their own free will or by means of coercion to use the land, labour, implements and other inputs in such a way that a greater or smaller part of the crops and/or animals produced is for exchange or sale (Okezie *et al*, 2008).

From methodological and analytical perspective, Berhanu and Moti (2010) broadened the concept of agricultural commercialization by asserting that it is a combination of both market orientation and market participation. Market orientation in this context is defined as agricultural production decision based on market signals while on the other hand, market participation is simply the produce offered for sale and use of purchased inputs. From this approach, market orientation seems to be more inclined toward profit maximization while market participation appears to aim at utility maximization. Therefore, commercialization is a combination of market oriented production and the actual amount bought from or offered to the market for sale. However, most agricultural commercialization literature makes little distinction between market orientation and market participation.

Other bodies of the wider literature broadly defined commercialization as having greater engagement with markets, either for inputs, outputs, or both by small family farms. For example Govereh *et al*, (1999) defined agricultural commercialization as “the proportion of agricultural production that is marketed”. Agricultural commercialization aims to bring about a shift from production for solely domestic consumption to production dominantly market oriented. In line with this definition, Sokoni (2007) defined commercialization of smallholder production as “a process involving the transformation from production for household subsistence to production for the market”. Moreover, Hazell *et al*, (2007) found out that most definitions refer to agricultural commercialization as “the degree of participation in the output markets with much on cash incomes”.

On the other hand Jennifer and Tina (2014) consider commercialization as constructed of two indices, which include the number of food crops produced and cash crops produced that allows production diversity, with cash crops such as chat, coffee, cotton, ‘*enset*’ (false banana), hops (‘*gesho*’), sugar cane, tea, tobacco, and sisal.

Therefore from the above concepts of smallholder commercialization, it is understandable that commercialization involves two steps; the first being the participation in input and output market and the second involving the degree of participation in a market. The latter is usually measured by the amount of the staple products and commercial outputs produced and offered to the market as compared to the total production. Thus it can be concluded that most commonly commercialization occurs in peasant agriculture is through production of marketable surplus of staple food over what is needed for own consumption. Another form of commercialization involves production of cash crops in addition to staples or even exclusively.

2.2. The Role of Agriculture and Smallholders

The conventional role of agriculture involves producing food for the growing population, producing raw materials for agro-industry, providing labour and market for urban industry, supplying savings for investment, and providing export earnings (World Bank, 2008; Pingali, 2010). The focus has been on the flow of food, materials and labour towards industry and urban areas, and to some extent, the flow of inputs towards farming areas. However, Pingali (2010) argues that agriculture has multiple roles which need to be re-discovered, and receive a renewed understanding and recommitment (agricultural renaissance) to realize greater value from the sector. These include agriculture’s contributions to socio- economic development through income growth, food security, household livelihoods, poverty alleviation, gender empowerment and environmental sustainability (Pingali, 2010).

Although some agro-pessimists do not believe in agriculture as a source of economic growth, agro-optimists provide overwhelming support and evidence for agriculture-induced socio-economic growth in developing countries (Gollin, 2010). For instance, agriculture is a significant part of Ethiopia’s economy. It accounts for 46.3% of the national Gross Domestic Product (GDP), more than 83% of employment, over 90% of the export market and 92% of the raw materials for the industry (IFPRI 2010, MoA 2010). Although agricultural development alone is not sufficient to guarantee economic growth, it is the first and most important source of growth, and was a precursor in many industrialized economies in Europe, as well as recent industrial growth in China, India and Vietnam (Hazell *et al.*, 2007; World Bank 2008; Gollin, 2010). Agriculture also provides environmental services like carbon sequestration, watershed management and preservation of biodiversity in light of climate change, resource scarcity and rising environmental management costs (World Bank, 2008).

On-going debate on the role of smallholders in agricultural development shows that some researchers believe that smallholders cannot cope with current trends in market demands due to their cost, technology, resource and skills challenges and part-time commitment (IFPRI, 2005). However, others argue that small farms are important players with significant shares in agricultural resources, activities and outputs hence they should lead agricultural growth (Hazell *et al.*, 2007; World Bank, 2008; Pingali, 2010; Salami *et al.*, 2010). In most developing countries, smallholders are preferred in new poverty alleviation strategies because: they own the bulk

of production resources like land and livestock; they directly benefit from income and food supply growth; and they can efficiently use land and cheaper family/local labour (Hazell *et al.*, 2007; World Bank, 2008; Salami *et al.*, 2010). It is therefore inevitable for smallholders to be incorporated into the market system in response to growing demand which current production cannot fulfill (Pinstrup-Andersen *et al.*, 1997; IFPRI, 2005).

In Ethiopia however, smallholders have remained subsistence oriented and their economic contribution has not been properly accounted for. This is because they face multiple challenges mostly related population growth and demographic changes, technologies, institutions, risks, market and their integration, transaction costs, asset holdings, policy aspect (Workneh and Michael, 2002; Degenet, 2005; Bellemare and Barrett, 2006; Gebremedhin *et al.*, 2009; Asfaw *et al.*, 2010; Gebreselassie and Ludi, 2010; Tanguy *et al.*, 2010; Moti and Berhanu, 2012). Despite these constraints, the future of smallholder commercialization is not completely bleak as opportunities also emerge in the changing environment especially those related to demand growth driven by population growth, urbanization, income growth and changing consumer tastes and lifestyles (Delgado *et al.*, 1999; Diao and Hazell, 2004; Hazell *et al.*, 2007; Pingali, 2010). Therefore, smallholders in Ethiopia have a chance to commercialize, grow their income and alleviate poverty.

2.3. Key Components of Agricultural Commercialization and Ethiopian Experiences

2.3.1. Commercialization drivers and opportunities

According to the reviewed work of Zhou *et al.*, 2013, factors which trigger smallholder commercialization can be classified in to five categories based on the nature of their impact. These are factors which: increase demand for agricultural products, push for renewed approaches to farming, make the operating environment more enabling, make operations more efficient or increase individual commitment to commercial activities.

a) Factors promoting demand growth

Like many African nations, the population in Ethiopia shows a sharp increase over the past 25 years. CSA (2008a), estimated the current population in Ethiopia at 84.3 million, based on 2.6 percent population increase rate, and using the 2008 census, which reported the total population as 77 million, as a basis. The census of 1984 reported that the total population was close to 42 million (Baker, 1990). The population increase is significantly higher in the urban areas. Likewise, Land O'Lakes (2008) reported that Ethiopia is amongst the fastest urbanizing nations in Africa, with urbanizing growth rates of 4.3 percent per year. This growth helps for smallholder commercialization to produce more for satisfying the need of the population.

In line to this, the growth of population, urbanization and income increases demand for both food and non-food agricultural products (Hazell and Wood, 2008; World Bank, 2008) and for crops, the demand is multi-faceted as increased demand for livestock products also causes increased demand for crops used to produce stock feeds (Pinstrup- Andersen *et al.*, 1997). These trends reinforce earlier projections that between 1993 and 2020, developing countries (especially Sub-Saharan Africa) will experience demand growth of 1.4% (per annum) for human consumption cereals, 2.6% for stock feed cereals and 2.9% for livestock products (Pinstrup-Andersen *et al.*, 1997; Delgado *et al.*, 1999). Demand growth is further expanded by changes in cultural diversity, consumer lifestyles and consumption patterns due to globalization, migration and urbanization (Mendez and Hopkin, 2004; Pingali 2010). Although greater competition and higher standards are expected in new markets (Pingali, 2010), demand growth opens good opportunities for smallholder commercialization.

b) Environmental changes pushing for renewed approaches

Climate change, resulting mostly from global warming, is a major threat especially to economic sectors sensitive to climate such as agriculture (Downing, 1993; Stern, 2007). Ethiopia is a country of an agrarian economy characterized by high population growth, huge dependence on erratic rainfall, low agricultural productivity, land degradation, drought and flood, increasing trends in temperature and a decreasing trend in precipitation (MoA, 2000; MoFED, 2002; EEA/EEPRI, 2005; Thijssen *et al.*, 2008). Furthermore, most crops and livestock farming in the country is rain-fed, and therefore, susceptible to weather fluctuations (Salami *et al.*, 2010). For instance, the majority of the rural people in the northern Ethiopian highlands in particular depend heavily on rain-fed subsistence agriculture and the daily exploitation of natural resources (Alebachew, 2011). Droughts and floods are very common occurrences with significant events every 3 – 5 years (World Bank, 2006). Because of changes in the patterns of the local climate, this region is exposed to chronic food shortages, degradation of natural resources, unstable livelihoods and distress migration (Markos, 1997; Alebachew, 2000; Alebachew, 2011). These conditions together with other factors make traditional smallholder agriculture less rewarding, hence the need for adapted approaches and market-oriented productivity revolution to meet the growing demand of agricultural production by population growth.

c) Factors making the operating environment more conducive for productivity

Ethiopia is the land of promise with great potential and a comparative advantage in agriculture. The country is endowed with large and diverse plant and animal genetic resources; great yet mostly untapped irrigation potential (Awulachew *et al.* 2010); and agricultural land and highly diverse agro-ecological zone that are suitable for the production of a wide varieties of crops and for keeping different species of animals. And, more

importantly, public investment over the past decade has been unprecedented in creating human capital, developing information and communication technology (ICT) infrastructure, electric power, and in road and other rural infrastructure to improve market access by smallholders and to enhance competitive advantage of the export sector (MoFED 2007).

In addition, the Ethiopian agricultural sector is still dominated by subsistence-oriented smallholders characterized by low levels of productivity. Therefore, in the last two decades, the government has adopted an agricultural-based development strategy for national economic transformation in which commercializing smallholder agriculture was the focal point (MoFED, 2003; MOFED, 2010). More emphasis was given to intensification of smallholder agriculture through the use of new technologies, infrastructure development and better access to service institutions (Gebremedhin *et al.*, 2006; MoFED, 2003; MOFED, 2010). This is because increasing productivity and production of marketable surplus of staple food crops to link farmers up with output market is the most common form of agricultural commercialization at the early stage of commercial transformation (Gebre-ab, 2006; Pingali and Rosegrant, 1995). However, smallholder farmers are often constrained by lack of liquidity to finance the inputs typically needed to increase productivity, particularly when agricultural credit is lacking or not easily accessible to poor (Carter *et al.*, 2004). Ethiopia is not an exception: although the government provides some credit services through different microfinance institutions, it is not easily accessible to all farmers.

d) Factors making operations more efficient

Sub-Saharan African countries where agriculture is the predominant sector that underpins the livelihood of the majority of the poor, increasing technology adoption such as new agricultural practices, high-yielding varieties, and the associated products such as crop insurance have the potential to contribute to economic growth and poverty reduction among the poor (Kelsey, 2011). According to Ravallion *et al.* (2007) many of the poor in SSA and South Asia are living in rural areas and they are farmers. In response to this, for many years, the government of Ethiopia working with extension program diffuses agricultural technologies to improve smallholders' crop productivity and farmer's income from surplus crop production. For example, there is a major policy shifts in Ethiopia since 1992 which has a substantial emphasis on improving the productivity of smallholder agriculture through increased use of a package of improved agricultural technologies. In doing such process smallholder agriculture producers are increasingly able to select economically viable technologies and practices for maximum and efficient production (MoFED, 2010). A recent study by Gebremedhin *et al.* (2009) showed that the expansion of the agricultural services had significant impact on the intensity of input use, agricultural productivity and market participation of Ethiopian smallholders.

e) Factors making individuals more committed to commercial activities

Entrepreneurial culture of farmers is among the key driver of commercialization (Poulton *et al.*, 2008; Kirsten *et al.*, 2012). So that to bring realistic transformation in agricultural activity, farmers must be trained to improve their knowledge, skill and attitude towards deciding on their own affairs, access to information, exposure to improved farming and living practices (Berhanu *et al.*, 2006).

With regard to this, the Federal Democratic Republic of Ethiopia has devised Agricultural Development Led Industrialization (ADLI) strategy that could bring real change in the county's economy. Farmers' Training Centers are one of the implementation approaches to promote the rural development as mentioned in the policy and strategy document. The establishment and organization of farmers' training centers is to provide training to farmers, and produce skilled farmers that can transform the country's agricultural production from subsistence to market oriented production system, bring a sustainable economic growth by raising the sector's output and productivity and effectively use the natural resources of the country (MOARD, 2009). Currently, there are about 8,500 FTCs established at the Kebele level, with roughly 2,500 of these FTCs reported to be fully functional (MOARD, 2009a cited in IFPRI, 2010). Stationed at each FTC are three Development Agents (DAs) responsible for providing advisory services on livestock, crop production, and natural resource management (IFPRI, 2010).

Although, access of all farmers to technical knowledge and skills is still much lower, its effort in the country implies that entrepreneurial capacity building can develop the commercial mindsets required to trigger commercial activity in smallholder agriculture (Rudmann, 2008).

2.3.2. Determinants of commercializing subsistence agriculture

The success and failure of smallholder commercialization is influenced by many enabling and constraining factors which can be physical, political, economic, socio-cultural, technological and individual (Pingali and Rosegrant, 1995; Louw *et al.*, 2008).

a) Enablers of smallholder commercialization

Policies, public goods and services, subsidies and investment incentives are some of the critical enablers to facilitate or promote the success of commercialization. With regard to this, Ethiopia has adopted commercialization of smallholder agriculture as a strategy for its economic transformation. For instance, the government has prioritized commercialization of farming as a policy agenda since 2005 and this priority is demonstrated by the central place in the second five year (2005/06-2009/10) Poverty Reduction Strategy Paper

(PRSP) called the Plan for Accelerated and Sustainable Development to End Poverty (PASDEP) (Sharp *et al.*, 2007:44). As a result the nation recorded encouraging growth during the project life.

Moreover, the Ethiopia's Growth and Transformation Plan I (GTP I) (2010/11-2014/15) retained agricultural sector growth as the prime driver of economic growth. The sector's strategy was further informed by the Agriculture Growth Program (AGP) and lessons drawn from implementation of the past development plans. The agricultural strategy directed on placing major effort to support the intensification of marketable farm products both for domestic and export markets, and by small and large farmers. Fundamentals of the strategy included the shift to produce high value crops, a special focus on high-potential areas, facilitating the commercialization of smallholder agriculture, and supporting the development of large-scale commercial agriculture where it was feasible. In order to ensure this transformation, ranges of public investments were set within the plan for continued scale-up of the successes registered in the past. Transparent and efficient agricultural marketing system were attempted to be strengthened. Investment in marketing infrastructure was also made to increase (FDRE, 2010). Similarly under current GTP II (2015/16 – 2019/2020) the same plan is made to mobilize all possible efforts to ensure adequate agricultural input supply and strengthen agricultural extension services, so as to boost productivity and then commercialization. Clearly, commercialization success cannot be attributed to any single factor, but a combination of several complementing factors.

b) Constraints of smallholder commercialization

In Ethiopia, Hagos and Geta (2013) developed a long list of factors that affect commercialization at local level based on the findings of different researchers. To them, population growth and demographic change, technologies, institutions, risks, market and their integration, transaction costs, asset holdings, policy aspect. These factors are briefly described below:

- **Population growth and demographic change:** Although population growth and demographic change have a positive impact on production of crops (Berhanu and Dirk, 2008), it must be noted that there is a negative impact on land access for crop cultivation bearing in mind that urbanization and agricultural transformation would equilibrate the demand for agricultural land at the long run (Hagos and Geta, 2013). The work by Samuel and Kay (2008) on the commercialization of smallholder agriculture in selected 'Teff'- growing areas of Ethiopia found out that land size, technology and access to service which determines the volume of production are important factors of commercialization level.
- **Agricultural technology adoption:** Workneh and Michael (2002), in their study of intensification and crop commercialization in North eastern Ethiopia, found that farm size, age and use of technology (fertilizer) significantly influence the agricultural activity under the study. Moreover, knowledge and perception about the improved varieties were also found to be the limiting factors for adoption despite positive demand for new cultivar. The implication is that there is a need to strengthen and leverage government extension service and rural institutions to promote awareness creation of the existing improved technologies.
- **Risks:** Gebreselassie and Ludi (2010) showed that likelihood to generate cash income improves consistently as the size of farm increases. Large farmers in general and especially those who cultivate above 5 ha of land generate substantially large cash income. Keeping the effect of other factors constant, the result implies the positive effect of operation at higher level in coping with the risk of higher variance of returns in cash crop production. Therefore, a policy of enhancing better credit system and designing risk coping strategies may help farmers to build assets that enhance the level of adoption of the new technology and price risks.
- **Market and their integration:** Asfaw *et al.* (2010) confirmed that in line with their expectation, distance to main market variable is negatively correlated with marketed surplus because of the increased transaction costs associated with marketing of the farmers' agricultural produce. This is also related to better access to improved seeds and other key agricultural inputs. Investment policies aimed at building up more rural road networks and improving the quality of roads may increase the level of market integration. Similarly, crop sales play important role in financing livestock purchase as seen by the strong relationship between household's net seller position in crop market and net buyer positions in live animal market. This could be due to the fact that livestock purchase as an input for farm operation or reproduction necessitates crop sale and income from crop sale is saved in a form of livestock asset (Gebremedhin *et al.*, 2009). Thus, integrated/mixed farming leads to market integration. This implied that promotion of both livestock and crop subsectors will lead to smallholder commercialization.
- **Transaction costs:** Bellemare and Barrett (2006) in their study of model of livestock market participation by pastoral households in northern Kenya and southern Ethiopia found out that prices matter to the extent of participation and that fixed transaction costs matter both in the participation and in the extent of participation decisions.
- **Asset holdings:** According to Asfaw *et al.* (2010), households with more family labour force, livestock and land allocated more land for the improved chickpea varieties. Ownership of these assets eases the access of households to improved seed and credit. Aman *et al.* (2014) have also undertaken the analysis of determinants of smallholder commercialization of horticultural crops in Gemechis District of West Hararghe

Zone in Ethiopia and the result revealed that, household education, household size, access to irrigation, cultivated land, livestock holding, and distance to the nearest market were the key determinants of the level of commercialization.

Moreover, livestock endowment strongly determines the net position households assume in live animal market as households with larger animal holdings are more likely to be net sellers in live animal markets and the fewer the holding, the more likely there will be net buyers in the same market (Moti and Birhanu, 2012).

- **Policy aspect:** Over the past decade, Ethiopia has embarked on a major policy drive to promote smallholder marketing cooperatives as a way to increase the commercialization of smallholder agriculture and the improvement of smallholder livelihoods. Studies using analysis is based on propensity score matching, the use of which is justified by the fact that most Ethiopian cooperatives were created under a government policy target of establishing the impulse of an external partner and not by members themselves. Tanguy *et al.* (2010) have examined the extent to which cooperatives affect their members' commercialization behavior. In general, one of the major bottlenecks, as many studies revealed, is related to the problem associated with enabling policy and institutional environment.

Finally, literature does not discuss individual constraints like commercial mindsets and attitudes in detail, but their mention shows that, they can cause failure of commercialization when unsuitable (Poulton *et al.*, 2008; Tefera *et al.*, 2004). Therefore, collective effort is necessary in dealing with these constraints for the success of smallholder commercialization in Ethiopia.

2.3.3. Process of smallholder commercialization

There are three levels of market orientation as far as food production systems are concerned, according to Pingali and Rosengrant (1995). These three levels are termed as subsistence systems, semi-commercial systems and commercial systems based on the farm households' objective for producing a certain crop, their source of inputs, their product mix and their income sources. Table 1, presents the three classifications with the respective characteristics of the households belonging to each category.

Table1. Characteristics of food production systems with increasing commercialization

Level of market orientation	Farmer's objective	Sources of inputs	Product mix	Household income sources
Subsistence systems	Food self-sufficiency	Household generated inputs (non-traded)	Wide range	Predominantly agricultural
Semi-commercial systems	Surplus generation	Mix of traded and non-traded inputs	Moderately specialized	Agricultural and non-agricultural
Commercial systems	Profit maximization	Predominantly traded inputs	Highly specialized	Predominantly non-agricultural

Source: Pingali and Rosegrant (1995) but adopted from Leavy and Poulton (2007)

This way of categorizing the market orientation of farm households may not be applicable in many developing countries as simplistic as it is. However, it has much resemblance to the food production systems of smallholder dominated countries of Africa and South-east Asia. This category is quite appropriate to Ethiopia, as a predominantly agrarian country and smallholder dominated nation.

2.3.4. Commercialization approaches or strategies

On the base of reviewed literature by Shadreck Zhou, *et al.* (2013), commercialization approaches can be classified by the leading agent of change or the primary driving force. It is also possible to have hybrid strategies combining any strategies from the two categories.

a) Classification by leading agent of change

Literature shows that commercialization efforts can be dominated by one agent or more entities undertaking facilitating or operational roles. Based on this, strategies can be (a) state-led (socialist), where government takes a leading role (Rukuni *et al.*, 2006; Jayne *et al.*, 2011); (b) private sector-led (capitalist), where private

companies take the leading role with minimum state support and interference (Mulemba, 2009); (c) donor-led, where the donor community and non-governmental organizations take a leading role (World Bank, 2008); or (d) collaborative (partnerships) strategy where there is joint effort between the state, private sector and donors (World Bank, 2008). Among all the strategies, partnerships have proved to be the most successful as single agent strategies proved costly or unsustainable (Poulton *et al.*, 2008; Biacuana, 2009; Mulemba, 2009). In Ethiopian case, the commercial transformation of subsistence farming is crucial for ensuring sustainable household food security and welfare and is an important pathway to economic growth and development. For this purpose, the government has promoted smallholder commercialization as a key policy agenda since 2005 as stipulated in the government's second Poverty Reduction Strategy Paper (PRSP) (Sharp *et al.*, 2007). The strategy sought to achieve commercial production through supporting the intensification of marketable farm products (both for domestic and export markets) and through promoting rapid non-farm private sector growth (MoFED, 2006).

b) Classification by leading driving force

Literature reveals that commercialization efforts can be primarily driven by one force while others take a supportive role where applicable. Commercialization can therefore be policy-driven (Hinderink and Sterkenburg, 1987; Kirsten *et al.*, 2012); demand-driven (Pinstrup-Andersen *et al.*, 1997; Delgado *et al.*, 1999); technology driven (Pingali, 2010); entrepreneurship-driven (Rudmann, 2008); or value chain-driven (ADB, 2004; Barrett, 2008). The process can also be driven by multiple forces.

2.3.5. Measurements of agricultural commercialization

Generally, different approaches are used to measure household commercialization level (Von Braun & Kennedy, 1994). According to Govereh *et al.* (1999), "commercialization can be measured along a continuum from zero (total subsistence-oriented production) to unity (100% production is sold)". Strasberg *et al.* (1999), suggested a measurement index called household Crop Commercialization Index (CCI) which is computed as the ratio of gross value of all crop sales over gross value of all crop production multiplied by hundred. The advantage of using this approach is that it "avoids the use of crude distinctions as commercialized and non-commercialized farms" (Govereh *et al.*, 1999). However, this index had its limitations. For instance, consider the case when a farmer producing one quintal of any cereal crop and sales that all and another farmer producing ten quintals of the same cereal crop and sales only two quintals. The CCI will tell us that the first farmer is fully commercialized (100%) while the second is semi-commercialized (20%). This interpretation does not make sense in such circumstances. Even though this limitation of using CCI is wrong nothing, there is still some room to use it in practice especially in the context of developing countries where it is less likely to get smallholders selling all of their output and very large farms selling none of their farm output.

As can be understood from the preceding discussion, the degree of participation in the output market is the conventional way to measure commercialization. However, Von Braun *et al.* (1994), provide other dimensions to the measurement of commercialization. Commercialization is calculated as percentage of the total produce sold from a household or as a percentage of cash crops as compared to all crops cultivated by household (Von Braun *et al.*, 1994). Von Braun *et al.* (1994) have specified the forms of commercialization and integration into the cash economy from at least three different angles and measured the extent of their prevalence at the household level with the following ratios:

$$(1a) \text{ Commercialization of agriculture (output side)} = \frac{\text{Value of agricultural Sales in Market}}{\text{Agricultural production value}} \times 100$$

$$(1b) \text{ Commercialization of agriculture (input side)} = \frac{\text{Value of Inputs Acquired from Market}}{\text{Agricultural production value}} \times 100$$

$$(2) \text{ Commercialization of rural economy} = \frac{\text{Value of goods and services Acquired through Market Transactions}}{\text{Total Income}} \times 100$$

$$(3) \text{ Degree of integration into the cash economy} = \frac{\text{Value of goods and services Acquired by cash Market Transactions}}{\text{Total Income}} \times 100$$

2.3.6. Effects of agricultural commercialization

Agricultural commercialization produces positive and negative, as well as intended and unintended results at household, societal and global level (Von Braun and Kennedy, 1994).

a) Positive effects

At household level, studies by IFPRI in Africa credited commercialization for: Increased productivity; family employment; increased household income through market participation and employment; improved consumption diversity; improved nutritional welfare; improved education, health and welfare; and improved household living standards (von Braun and Kennedy, 1994). The same studies discovered that at societal level, commercialization contributes to food security; poverty alleviation; rural and urban employment creation; improved livelihoods and

social status as well as economic growth through productivity and investment (von Braun and Kennedy, 1994). World Bank (2008) further credited commercialization for creating rural markets for agro-inputs; creating rural supply bases for urban industries and consumers; increased economic investment in agriculture and other sectors; distribution of agricultural products through trade and environmental sustainability.

In Ethiopia smallholder farmers who operate farm are mainly cereals growers for both own consumption and sales on less than 2 hectares per household, albeit physically small when seen separately, as a group covers 96% of total area covered by crop and contribute 97 % of total crops produced (96.8% of grain crops, out of which 97.4%, 98.6%, 81.3% are cereals, pulses and oil seeds in the same order); 76.3%, 90.9%, 80.6%, 80.9%, 22% and 85.7% are vegetables, root crops, fruits, coffee, sugarcane and other cash crops respectively) during the year 2009/10 (Alemayehu *et al.*, 2011 and MoFED, 2010).

It is in response to these facts that the Government of Ethiopia (GoE) has prioritized commercialization of farms in general and smallholder agriculture in particular. In its second Poverty Reduction Strategy Plan, PASDEP set for the time span 2005/06 to 2009/10, the GoE gave high consideration for commercialization of agriculture including a shift to higher-valued crops; promoting niche high-value export crops, a focus on selected high-potential areas, facilitating the commercialization of agriculture, supporting the development of large scale commercial agriculture where it is feasible and better integrating farmers with markets both locally and globally (Havnevik *et al.*, 2006 and MoFED, 2006). As a result the nation recorded encouraging growth during the project life.

In general, all the above body of literature confirm commercialization's role in livelihoods, rural development and poverty reduction.

b) Negative effects

Mixed results reported from studies have caused some questions to be raised over commercialization's nutritional, welfare and environmental sustainability roles (Von Braun and Kennedy, 1994). According to Von Braun and Kennedy (1994) and Pingali and Rosegrant (1995) commercialization has been criticized for failure to improve household nutrition and livelihoods of the poorest; replacing subsistence risk with more complex market risk; failing to guarantee household food security; and opposing food self-sufficiency objectives. It has been also criticized for widening regional income inequalities (Pingali and Rosegrant, 1995), land degradation through chemicals (Pingali, 2001) and being an expensive and risky undertaking especially by the poorest (Pingali *et al.*, 2005). In line with this, countries like Ethiopia where the topography is mountainous in the highland and midland agro-climates, agricultural commercialization could lead to deforestation, the occurrence of floods and droughts, rivers being poisoned with agrochemicals, and farmers being laden with debts (Forsyth and Walker 2008). In addition, the study conducted by Amsalu (2014) on the impact of smallholder farmers commercialization on rural poverty in Jimma Zone of south west Ethiopia indicate that the commercialization of smallholder farmer had no effect on poverty level of the households.

However, von Braun and Kennedy (1994) argue that the accusations are not comprehensively proven as some of criticisms leveled against commercialization are in fact results of failure in policies, strategies, institutions, attitudes, and distribution of benefits and costs within households and communities. Although some negative results have been reported, positive results outweigh the criticisms and strengthen the need for commercialization. However, more empirical research is needed on effects to determine more convincing results.

2.4. Synthesis of Review Findings

2.4.1. Conceptual model - Interconnected components of commercialization

The discussion on smallholder agricultural commercialization has identified key interrelated components of the concept as drivers; determinants (enablers and constraints); processes; approaches (strategies), indicators (measurement elements) and effects (positive and negative/household and societal). These can be condensed into a conceptual model useful in planning, implementation and review of commercialization programs (Figure 1). Multiple drivers (A) trigger the process by: increasing demand (like urbanization); making the environment more enabling (like policy, resources); pushing for new farming approaches (like climate change); making operations more efficient (like technology) or making farmers more committed (like entrepreneurship). For instance, when demand attractively grows, producing for the market becomes necessary and when appropriate technology is accessed, production for the market becomes more efficient. As smallholders progress from subsistence towards market orientation, the success and failure of the process is influenced by several environmental (like socio-economic factors), farm level (like farm resources) and individual (like skills) determinants (B) whose effects are also influenced by the drivers. When these factors are favorable, they facilitate/enable the process making it successful, but when unfavorable hinder the process causing its failure. The process (C) implies that farmers progressively substitute subsistence practices (decreasing) for commercial practices (increasing) until they fully commercialize. The process is approached differently based on the leading agent of change or the primary driver or any combination of them. The strategy (D) adopted determines key players, key activities and the role of producers. Most successful cases are based on collaborative efforts as successful commercialization has proved

difficult without partnerships and all-inclusive approaches. Progress is measured/indicated (E) by some production purpose and orientation, nature of enterprise decisions (like resource allocation and technology) and extent of market participation (input and output). Ultimately, successful commercialization is expected to yield positive outcomes (F) at household level (like income) and positive impacts (G) at societal level (like food security). At the same time, some negative and unintended effects (H) can also emerge (like market risk) depending on contexts and strategies adopted. Lessons picked from the results feed into future programs and strategies (K).

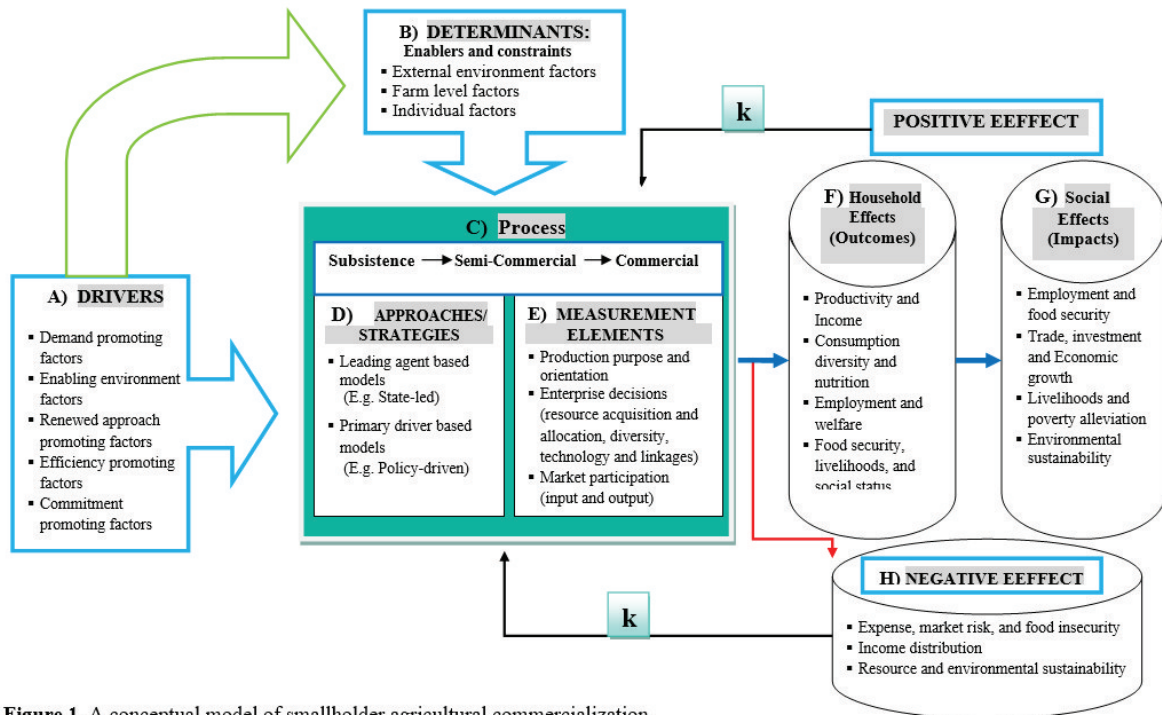


Figure 1. A conceptual model of smallholder agricultural commercialization
 Source: Adapted from Zhou *et al.* (2013)

2.4.2. Application of the conceptual model

The conceptual model is useful in understanding the concept of commercialization by researchers, economic players and other stakeholders as it provides a condensed overview of the whole concept by summarizing key components of commercialization and how they are inter-related. It arouses attention to salient aspects like the multiple drivers, two-sided nature of determinants, strategy options, measurement elements and multi-faceted nature of effects. This enhances comprehensiveness in planning, implementation and assessment of commercialization programs. The measurement elements can also be used to profile smallholder farmers according to commercialization extent in order to craft targeted strategies and interventions for different levels. Given many agricultural development cases around the world, the model is instrumental in analysis, comprehension and comparison of the cases as it provides a framework to isolate key issues and lessons from the experiences. The key components highlighted by the model are not limited to agricultural commercialization projects alone but can be adapted for other developmental projects.

2.5. Gaps in commercialization literature

This review revealed some gaps in smallholder commercialization which future research and development should address (Figure 2). Although they cannot be addressed at once, highlighting them helps future research to address missing links to complement existing work.

1. Limited coverage of individual determinants of commercialization as research has over-concentrated on external factors (Jaleta *et al.*, 2009)
2. Limited focus on livestock (especially small ruminants) as most studies have been on crops and beef (Rukuni *et al.*, 2006; Khombe and Ndlovu, 2008; Jaleta *et al.*, 2009)
3. Narrow definitions and measurement of commercialization—mostly measured in terms of the proportion of marketed output (Okezie *et al.*, 2008; Jaleta *et al.*, 2009)
4. Limited empirical studies on determining commercialization extent and effects, as studies have concentrated on constraints (Von Braun and Kennedy, 1994; Jaleta *et al.*, 2009)
5. Limited private sector involvement in smallholder commercialization (ADB, 2004; World Bank, 2008)
6. Scarcity of comprehensive models of stimulating action, attitude change, entrepreneurialism and investment by smallholder farmers (ADB, 2004; World Bank, 2008)

Figure 2. Summary of identified research gaps
Source: Compiled from literature as indicated.

3. CONCLUSION

This paper sought to review smallholder agricultural commercialization developments in Ethiopia to expose the potential, components and research gaps for future research. The key findings presented in this review have uncovered some important insights into the conceptual understanding, role, drivers, determinants, strategies, measurement and effects of agricultural commercialization in Ethiopia. The contribution of agriculture and commercialization towards income growth, employment creation, economic growth, livelihoods improvement and poverty alleviation is clear as evidenced by a comprehensive body of literature attesting to this. Although commercialization has been traditionally associated with large scale producers, growing opportunities are making it inevitable for smallholders to be integrated into the market economy. To achieve all-inclusive growth, smallholders therefore need all-stakeholder support to deal with constraints and participate in commercialization opportunities to realize its full benefits.

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